In the configuration of the receiving unit shown in Fig. 39, after being converted into an electric signal by the PD 140 and being amplified by a pre-amplifier 250, the output of the variable dispersion compensator 130 is inputted to both a peak detection circuit 280 and an equalizer 260. The output of the equalizer 260 is inputted to a clock/data restoration unit restoring a clock and data, and data restoration is applied to the output. Then, the output proceeds to a subsequent signal process. The peak detection circuit 280 detects the peak of the signal and notifies the control circuit 160 of the peak value, based on the ~~hight~~ height of the peak. The control circuit 160 determines whether residual dispersion increases or decreases, based on the peak value, and optimizes the amount of compensation by controlling the variable dispersion compensator 130.

Please REPLACE the paragraph beginning at page 59, line 24, with the following paragraph:

Fig. 40 shows a configuration in which the peak detection circuit 280 is connected to the output of the pre-amplifier 250. Since the waveform of a received signal can also be computed thus, a peak can be detected. Therefore, the increase/decrease of residual dispersion can be notified to a control circuit.

Please REPLACE the paragraph beginning at page 60, line 22, with the following paragraph:

In Fig. 42, a receiver 150 comprises a peak detection circuit 280 and an FEC unit 300 computing error rate information. FEC (forward error correction) is an error correction block using an error correction code, and FEC-IC having this function generally has a function to compute information similar to an error rate, such as the number of error correction, etc. A peak value detected by the peak detection circuit 280 and error rate information detected by the FEC unit 300 are inputted to a monitor circuit 310 and is used to generate a control signal to a variable dispersion compensator, which is not shown in Fig. 42.

Please REPLACE the paragraph beginning at page 62, line 11, with the following paragraph:

Fig. 45 shows a system using FEC, which uses error rate information detected by the FEC unit 30. Fig. 46 shows a system using the byte B1 of a SONET/SDH signal. In Fig. 46, the receiver 150 processes the overhead of a SONET/SDH signal, extracts byte B1 information and transmits the information to the control unit 160. Besides, if it is information about transmission quality, such as a Q factor, etc., this preferred embodiment of the present invention could be used as a chromatic dispersion monitor.

Please REPLACE the paragraph beginning at page 67, line 13, with the following paragraph:

In Fig. 50, an average output power monitor 35<u>0</u> is provided. In the preferred embodiment described earlier, the output power in the high level of an optical signal is maintained constant by ALC-controlling an optical amplifier 25<u>0</u>. Thus, the peak of the optical signal is detected, and by comparing the peak with a predetermined threshold, the increase/decrease of residual dispersion can be decided. In this preferred embodiment, by monitoring the average output of an optical amplifier assuming there is no change in the modulation method, mark ratio, duty, etc., of a received optical signal and controlling the threshold based on the change, the increase/decrease of residual dispersion can be decided and 0.0045 (a.u.).

Please REPLACE the paragraph beginning at page 70, line 23, with the following paragraph:

In a normal operation state where chromatic dispersion per unit time in a transmission line <u>is below the threshold</u>, an optimal point searching algorithm, such as a down-hill method, etc., follows and controls the optimal amount of chromatic dispersion compensation with high accuracy. The threshold is set, for example, to ±10ps/nm. In the examples shown in Fig. 45 or 46, the amount of chromatic dispersion compensation is controlled to approximately -30ps/nm and the error rate becomes 3.5x10-8. In this case, if the chromatic dispersion in a transmission line changes for some reason and the error rate measured as a chromatic dispersion monitor rapidly drops to 1.0x10-8, the amount of chromatic dispersion compensation is controlled with priority given to speed using the chromatic dispersion change sign monitor of this preferred embodiment of the present invention. Then, by using the characteristic shown in Fig. 43, which has been obtained at the time of initial setting, a change of +15ps/nm or -15ps/nm in the chromatic dispersion of the transmission line due to the amount of change in the error rate can be computed. Furthermore, since the increase/decrease of chromatic dispersion can be decided by the information of the peak detection circuit, the amount of chromatic dispersion compensation can be led in within an allowable penalty (tolerance) by one operation.